HYPEROL

(Extra Pharmacopœia)

SOLID HYDROGEN PEROXIDE

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HYDROGEN PEROXIDE made its first official appearance in the British Pharmacopœia in 1898, by which time the commercial manufacture of a product of the necessary degree of purity and stability had been developed sufficiently to enable the manufacturers to supply the medical profession with adequate quantities of Hydrogen Peroxide at a reasonable price. Since that date, Hydrogen Peroxide has attracted much attention in medical and surgical spheres. Its constitution, nascent oxygen and water (Eau oxygénée of the French Pharmacopœia) makes it theoretically the ideal reagent for antisepsis, sterilization, and disinfection. But, unfortunately for the medical profession, the majority of brands of Hydrogen Peroxide, hitherto available, are possessed of drawbacks which have hindered the extension of its application.

The official solution contains only 3 per cent. H_2O_2, which makes it excessively bulky and renders its use in portable outfits almost impossible.

All grades of aqueous Hydrogen Peroxide contain varying quantities of free mineral acid, usually a mixture of phosphoric and sulphuric acids, and repeated references can be found to the necessity for neutralization before Hydrogen Peroxide can be applied to open wounds or delicate tissues.

All grades of aqueous Hydrogen Peroxide are unstable and undergo varying rates of spontaneous decomposition, in spite of the enormous

amount of research which has been devoted to the stabilization of Hydrogen Peroxide. There is always a risk of bottles bursting and corks blowing out, and one can never be sure whether material which has been stored for some time tests ten volumes of available oxygen or one. Furthermore, since an increase in temperature of about 5° C. suffices to double the rate of decomposition the use of Hydrogen Peroxide in tropical and sub-tropical countries is practically a matter of impossibility.

All these difficulties have been simultaneously overcome by the production of Hydrogen Peroxide IN SOLID FORM.

Solid Hydrogen Peroxide (Hyperol) is a white crystalline compound of Urea and Hydrogen Peroxide, its formula being $CO(NH_2)_2H_2O_2$. It contains 35 per cent. H_2O_2 and rapidly dissociates in water to Urea and Hydrogen Peroxide forming a clear solution.

Solid Hydrogen Peroxide is entirely free from mineral acids, stabilization being effected by the addition of a minute trace of a feeble organic acid.

Solid Hydrogen Peroxide is perfectly stable under all climatic conditions and can be relied upon for the production of a solution of known concentration at all times.

Solid Hydrogen Peroxide contains the highest percentage of H_2O_2 of all the forms available. It therefore occupies little space and being a solid, there is no fear of leakage.

Solid Hydrogen Peroxide (Hyperol) is available in two forms:—

1. A white crystalline powder, containing 35 per cent. H_2O_2.

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2. TABLETS (8 grains) so designed that one tablet dissolved in one fluid ounce of water produces a solution of 2 volumes strength.

The range of products offered enables the practitioner to prepare solutions of any known strength in any quantity, and as the amounts actually required on each occasion are generally small, the use of Solid Hydrogen Peroxide will effect a real economy. Although the tablets dissolve readily at ordinary temperatures, it is desirable to use water at about 100° F. as at this temperature the dissolving is accelerated, the activity of the solution increased, and it can be applied to any part of the body without shock to the patient.

Before turning to the special applications of Solid Hydrogen Peroxide, attention should be called to several important properties which considerably enhance its value. Solid Hydrogen Peroxide has no action on Pepsin, Pancreatin or Malt Extract. It does not precipitate albumen or fats, and the entire absence of mineral acids eliminates all possibility of the precipitation of insoluble or sparingly soluble organic acids.

SPECIAL APPLICATIONS OF SOLID HYDROGEN PEROXIDE

BACTERIOLOGY.

Solid Hydrogen Peroxide is the ideal antibacterial agent for the destruction of all anærobic bacteria. The formation of nascent oxygen, together with the dynamic action of the molecular

oxygen producing a circulation effect, gives the optimum conditions for the extermination of undesirable micro-organisms. Solid Hydrogen Peroxide is efficient in relatively dilute solutions and is without the corrosive or poisonous action of such substances as Hyd. Perchlor, Phenol and Hypochlorites.

Solid Hydrogen Peroxide can be strongly recommended for the treatment of the following micro-organisms: *b. anthracis*, *b. typhosus*, *b. coli*, *b. pyocyaneus*, *micrococcus pyogenes aureus et albus*.

SURGERY

Solid Hydrogen Peroxide can be put to a large variety of uses. An odourless, non-poisonous reagent, free from mineral acid, it can be applied to all classes of open wounds which are capable of subsequent irrigation.

Solid Hydrogen Peroxide is of great value in the removal of tightly adherent dressing. For this purpose a 10 volume solution should be prepared and the dressing soaked. The dressing can be removed with ease after a short time.

Solid Hydrogen Peroxide has been used with success in inoperable cancer, and in the prevention and treatment of gangrene. It will be found invaluable in the treatment of foul-smelling wounds.

UROLOGY.

Solid Hydrogen Peroxide is extremely useful as a disinfectant in various urinary diseases, for which 3 or 4 volume strength solution should be used. Once again the entire absence of mineral acid is a

great advantage. In the treatment of gonorrhœal inflammation of the urethra, an injection of the above solution will give beneficial results, arising from the antiseptic and mechanical action of the nascent oxygen on the pus. The action of the active oxygen on the tension of the mucus also causes an attack on the gonococci hidden in the crevices of the urethra. Solid Hydrogen Peroxide can be used in this manner for the diagnosis of chronic cases, and the nascent oxygen also serves to oxidize the gonococcus toxine.

Solid Hydrogen Peroxide can also be used in the treatment of buboes and syphilitic ulcers.

OTOLOGY

The use of hydrogen peroxide for the removal of wax and in the treatment of middle ear suppuration is well known. Solid Hydrogen Peroxide is to be strongly recommended.

For the treatment of chronic middle ear suppuration, especially for loosening a tough discharge, a solution of 5 to 10 volumes strength should be used warm, followed by syringing with warm Boric Acid solution and drying. It is essential that there shall be adequate drainage in these cases.

For the treatment of scarlatinal otitis, particularly when the discharge is thick and offensive, a 20 volumes strength solution should be instilled before and after each irrigation.

GYNÆCOLOGY.

Solid Hydrogen Peroxide will be found of great value in gynæcological practice. A solution of

5 to 10 volumes strength constitutes an excellent douche for the vagina and the vulva. A solution of 2 to 10 volumes in all cases exhibiting symptoms of suppuration, gangrene, and catarrh, produces excellent results and it should be mentioned that contrary to other cleansing and astringent agents, hydrogen peroxide has no effect on healthy tissue, its action being confined to the affected areas.

In rupture of the perineum, when dangerous infection is threatened both from the anus and the vagina, an immediate and thorough cleansing with a 5 to 10 volumes strength solution is of great value.

After removal of the epithelium, Solid Hydrogen Peroxide is indicated on account of its granulating action.

A lotion of 3 to 10 volumes strength is useful in endometritis, even in cases of blood poisoning after miscarriage, such as vulvovaginitis and leucorrhœa, and in cases of acute colpitis the affected mucus membrane should be treated with a 10 volumes strength solution. In acute endometritis, gauze sprinkled with Solid Hydrogen Peroxide should be inserted in the uterine cavity.

Neglected bedsores can be cleansed and rapidly healed by treatment with 3 to 10 volumes strength solution, and inoperable cancer of the womb yields to treatment with Solid Hydrogen Peroxide, the necrotic tissue being removed, hæmorrhage stopped, and bad odours suppressed.

OPHTHALMICS.

Solid Hydrogen Peroxide is of great value for the preparation of drops and lotions, and as a 1 to 3

volumes strength solution can be applied by a brush or on dressings. Its styptic action is of special value in the treatment of capillary hæmorrhage.

Solid Hydrogen Peroxide has already found very extensive use in the treatment of spring catarrh, and chronic dacryocystitis. In affections of the cornea of various origins, and in corneal ulcers excellent results can be obtained, since the disinfection penetrates without any effect on healthy tissues. In suspected cases of traumatic infection of the eye, Solid Hydrogen Peroxide is of great use, and in affections of the eyelid with blepharitis and xerosis conjunctivæ treatment with a 1 to 3 volumes strength solution will remove the scales and facilitate cleansing of the eye.

DERMATOLOGY.

Hydrogen peroxide has long been used for cosmetic purposes as a hair bleacher and depilatory. Solid Hydrogen Peroxide lends itself to these applications in view of its high concentration of hydrogen peroxide, and is particularly adapted for the preparation of strong compresses for the bleaching of hair and the removal of light hair.

A beneficial effect is obtained by treatment of eczema with a 3 volumes strength solution.

Nævi pigmentosi can be overcome by regular daily treatment with a strong solution of Solid Hydrogen Peroxide.

Many dark-coloured skin blemishes such as, for instance, freckles, frequently yield to daily treat-

ment with a strong solution of Solid Hydrogen Peroxide and assume a normal skin colour.

In the treatment of psoriasis, it will be found that preliminary application of a Solid Hydrogen Peroxide dressing will cause rapid granulation and assist the penetration of subsequent local applications.

Solid Hydrogen Peroxide is of great value in the treatment of venereal ulcers and ulcerated or gangrenous affections. The ulcers should be dabbed with a strong solution, or the powder sprinkled on, after which a dressing of 10 volumes strength should be applied.

Chilblains at any stage may be treated with strong solutions of Hydrogen Peroxide. Even if broken and festering, daily treatment for 20 minutes with a 10 to 20 volumes strength solution will give great relief and cause rapid healing.

RHINO-LARYNGOLOGY.

Solid Hydrogen Peroxide is of great service in cases of congested secretion in the nose and pharynx, especially if visibility is obscured for diagnosis or operation. By using a 5 volumes strength solution this difficulty can be overcome. In obstructions and after tonsillectomy a 3 to 5 volumes strength solution should be applied.

Solid Hydrogen Peroxide solutions as a spray or nasal douche give good results in ozœna and quinsy, and in operations in the nose and throat the hæmostatic action is of great value, the powder being applicable to this purpose.

STOMATOLOGY AND DENTISTRY.

Solid Hydrogen Peroxide is, above all things, the ideal agent for the preparation of a highly active, but entirely harmless, antiseptic mouthwash. In contact with the alkaline secretions of the mouth considerable frothing takes place, due to the rapid liberation of oxygen. This energetic reaction causes the nascent oxygen to penetrate all the crevices of the mouth, gums, and teeth, killing pathogenic micro-organisms and sterilizing the remnants of the food and other debris in the mouth. Thus, diseases such as root infection, pulpitis (dental caries) and gumboils can be avoided and in the removal of septic roots, treatment with Solid Hydrogen Peroxide will eliminate the possibility of complications such as osteomylitis of the jaw and alveolarpyorrhœa setting in. For the latter purpose a plug soaked in a strong solution should be inserted in the root canal, subsequently washing out the mouth with a dilute solution. In addition to its antiseptic action, Solid Hydrogen Peroxide deodorizes the mouth and bleaches the teeth.

Solid Hydrogen Peroxide acts as an oxidizing agent on the toxines produced in the unhealthy mouth, and thus serves to reduce gastric disorders.

Reference should here be made to the sterilization of milk with Solid Hydrogen Peroxide, relative to intestinal infection and infantile diarrhœa. The addition of one tablet to one pint of milk is sufficient to exterminate all pathogenic micro-organisms and toxines, without any effect on the food value, and incidentally increases the keeping properties especially during hot weather.

In conclusion, we give an alphabetical list of the diseases in which Solid Hydrogen Peroxide is indicated.

Abscesses
Bedsores
Bronchitis (Fetid)
Blepharitis
Chilblains
Conjunctivitis (Spring Catarrh)
„ Gonorrhœal
„ Membranous
„ Purulent
Dacryocystitis (Chronic)
Dental Caries
Diphtheria
Dysentery
Dyspepsia (Flatulent)
Epistaxis
Favus
Fistula (after Mastoid operation)
Gangrene
Hay Fever
Hæmorrhage
Hyperchlorhydria
Infections with:
Bacillus Anthracis
„ *Coli*
„ *Pyocyaneus*
„ *Typhosus*

Gonococcus
Staphylococcus
Streptococcus
Leucorrhœa
Laryngeal Tuberculosis
Lupus
Malignant Pustule
Nævi Pigmentosi
Osteomylitis of the Jaw
Otorrhœa
Otitis
Ozœna (non Syphilitic)
Periodontitis (Chronic or Gouty)
Pharyngitis
Polypi
Psoriasis
Purulent discharges
Pyorrhœa Alveolaris
Stings (Wasp or Snake)
Stomatitis
Tonsilitis
Tuberculosis (non-Pulmonary)
Ulcers (Syphilitic)
„ Corneal
„ Simple
Uterine Cancer
Vulvo Vaginitis
Xerosis Conjunctivæ

The 50-tablet size bottle is very conveniently portable and should be carried by every practitioner for the sterilization of clinical thermometers. One tablet in half a glass of water produces an efficient solution for this purpose.

Solid Hydrogen Peroxide is sold in the following forms:—

8-grain tablets, in bottles of 50 tablets, @ 2/9 per bottle.

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Hospital-size bottles containing 1000 8-grain tablets, @ 30/- per bottle.

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If supplies cannot be obtained through the usual channels, please apply to the manufacturers for name of nearest supplier.

Sole Manufacturers

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